

Amendments to the Claims

1. **(Original)** A mammalian cell comprising
 - a. a responsive transcription factor RTF, which modulates transcription of OP operator-containing promoters in response to compounds being gaseous or liquid at the cultivation temperature of said mammalian cell;
 - b. a promoter or promoter fragments operatively linked to OP operator sites specific for binding of said RTF.
2. **(Original)** The mammalian cell of claim 1 further comprising a nucleic acid encoding a desired protein functionally linked to said promoter or promoter fragments operatively linked to OP operator sites specific for binding an RTF.
3. **(Currently amended)** The mammalian cell of claim 1-~~or~~2, wherein binding of the RTF to OP-containing promoters is changed in response to compounds being gaseous at the cultivation temperature of said mammalian cell.
4. **(Currently amended)** The mammalian cell of claim 1-~~or~~2, wherein binding of the RTF to OP-containing promoters is changed in response to compounds being liquid at the cultivation temperature of said mammalian cell.
5. **(Original)** The mammalian cell of claim 1, wherein the RTF comprises amino acid sequences related to or derived from naturally occurring proteins.
6. **(Currently amended)** The mammalian cell of claim 1-~~or~~2, wherein the RTF comprises amino acid sequences related to or derived from non-mammalian proteins.
7. **(Currently amended)** The mammalian cell of claim 1-~~or~~2, wherein the RTF is the *Aspergillus nidulans* AlcR protein.

8. (Currently amended) The mammalian cell of claim 1-~~or~~2, wherein the RTF is the *Pseudomonas putida* AlkS protein.

9. (Currently amended) A non-human mammal comprising at least one mammalian cell as claimed in claim 1-~~or~~2.

10. (Original) A method for adjusting the expression level of a desired protein in a mammalian cell as claimed in claim 2, comprising culturing said mammalian cell and modulating gene expression by administration of a compound for which transcription of the OP operator-containing promoter and the responsive transcription factor RTF are responsive.

11. (Original) The method of claim 10, wherein the protein is selected from the group consisting of SEAP, a fluorescent protein, human growth hormone, alpha-interferon, beta-interferon, gamma-interferon, insulin, erythropoietin, tissue plasminogen activator, DNase, a monoclonal antibody, Factor VIII, Factor VII, HAS, IL-2, glucagons, EGF, GCSF, GMCSF, thrombopoietin, gp160, HbSAg, a protein encoded by a tumor suppressor gene, and a protein encoded by a gene interfering with absorption, distribution, metabolism and excretion of compounds contained in tobacco smoke.

12. (Original) The method of claim 10, wherein the compound for modulating gene expression is selected from the group consisting of ketones, aldehydes, haloalkanes, alcohols, esters, amines, and ethers.

13. (Original) The method of claim 10, wherein the compound for modulating gene expression is selected from the group consisting of ethanol, methylamine, ethylamine, n-propylamine, n-butylamine, n-pentylamine, n-hexylamine, benzylamine, 2-butanone, ethanol, n-propanol, n-butanol, 2-propanol, 2-butanol, 2-methylbutyraldehyde, acetaldehyde, propanal, acetone, 2-butanone, 2-pentanone, 3-pentanone, cyclohexanone, glycoaldehyde, glyoxal, glyoxylate, ethylene glycol, ethanolamine, ethyl acetate, ethyl

ether, and dicyclopropylketone, and compounds that are metabolized *in situ* to said members of the group.

14. (Original) The method of claim 10, wherein the compound for modulating gene expression is selected from the group consisting of ethanol, methylamine, ethylamine, n-propylamine, n-butylamine, n-pentylamine, n-hexylamine, benzylamine, 2-butanone, ethanol, n-propanol, n-butanol, 2-propanol, 2-butanol, 2-methylbutyraldehyde, acetaldehyde, propanal, acetone, 2-butanone, 2-pentanone, 3-pentanone, cyclohexanone, glycoaldehyde, glyoxal, glyoxylate, ethylene glycol, ethanolamine, ethyl acetate, ethyl ether, and dicyclopropylketone.

15. (Original) The method of claim 10, wherein the RTF comprises amino acid sequences related to or derived from non-mammalian proteins.

16. (Original) The method of claim 10 wherein the RTF is the *Aspergillus nidulans* AlcR protein and the compound for modulating gene expression is acetaldehyde.

17. (Original) A method for adjusting the expression level of a gene in a mammalian cell as claimed in claim 1, comprising

- a. functionally linking said gene to an OP-containing promoter,
- b. transferring said OP-containing promoter functionally linked to said gene into said mammalian cell, and
- c. inducing expression of said gene by activating said OP-containing promoter by administration of a compound for which the OP operator-specific responsive transcription factor RTF is responsive.

18. (Original) The method of claim 17, wherein the gene codes for a protein selected from the group consisting of SEAP, a fluorescent protein, human growth hormone, alpha-interferon, beta-interferon, gamma-interferon, insulin, erythropoietin, tissue plasminogen activator, DNase, a monoclonal antibody, Factor VIII, Factor VII, HAS, IL-2, glucagons, EGF, GCSF, GMCSF, thrombopoietin, gp160, and HbSAg.

19. (Original) The method of claim 17, wherein the gene is a tumor suppressor gene.

20. (Original) The method of claim 17, wherein the gene is a gene interfering with absorption, distribution, metabolism and excretion of compounds contained in tobacco smoke.

21. (Original) The method of claim 17, wherein the compound for which the OP operator-specific responsive transcription factor RTF is responsive is selected from the group consisting of ketones, aldehydes, haloalkanes, alcohols, esters, amines, and ethers.

22. (Original) The method of claim 17 wherein the compound for which the OP operator-specific responsive transcription factor RTF is responsive is selected from the group consisting of ethanol, methylamine, ethylamine, n-propylamine, n-butylamine, n-pentylamine, n-hexylamine, benzylamine, 2-butanone, ethanol, n-propanol, n-butanol, 2-propanol, 2-butanol, 2-methylbutyraldehyde, acetaldehyde, propanal, acetone, 2-butanone, 2-pentanone, 3-pentanone, cyclohexanone, glycoaldehyde, glyoxal, glyoxylate, ethylene glycol, ethanolamine, ethyl acetate, ethyl ether, and dicyclopropylketone, and compounds that are metabolized *in situ* to said members of the group.

23. (Original) The method of claim 17 wherein the compound for which the OP operator-specific responsive transcription factor RTF is responsive is selected from the group consisting of ethanol, methylamine, ethylamine, n-propylamine, n-butylamine, n-pentylamine, n-hexylamine, benzylamine, 2-butanone, ethanol, n-propanol, n-butanol, 2-propanol, 2-butanol, 2-methylbutyraldehyde, acetaldehyde, propanal, acetone, 2-butanone, 2-pentanone, 3-pentanone, cyclohexanone, glycoaldehyde, glyoxal, glyoxylate, ethylene glycol, ethanolamine, ethyl acetate, ethyl ether, and dicyclopropylketone.

24. (Original) The method of claim 17 wherein the OP-containing promoter is an AlcR-specific OP site, RTF is the *Aspergillus nidulans* AlcR protein, and the compound for which RTF is responsive is acetaldehyde.

25. (Original) An isolated nucleic acid useful for constructing a mammalian cell as claimed in claim 1, comprising an RTF-encoding nucleic acid functionally linked to a promoter useful for expression of the RTF in said mammalian cell.

26. (Original) The isolated nucleic acid of claim 25 comprising an OP sequence functionally linked to a promoter or a fragment thereof useful for RTF-dependent gene expression in said mammalian cell.

27. (Currently amended) The isolated nucleic acid of claim 25 ~~or 26~~ further comprising genetic elements useful for construction of viral vectors.